Classé

CP-35

PREAMPLIFIER

SERVICE MANUAL

v 1.0

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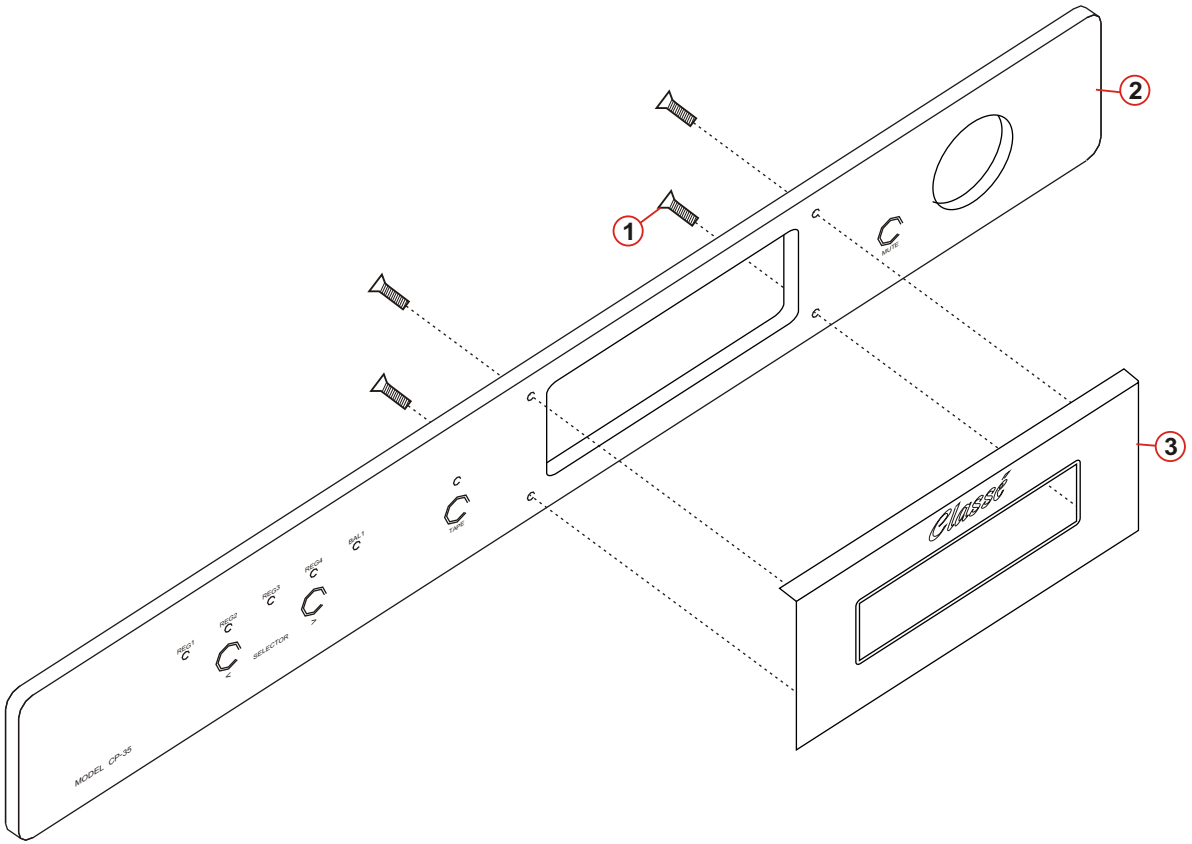
MECHANICAL ASSEMBLY

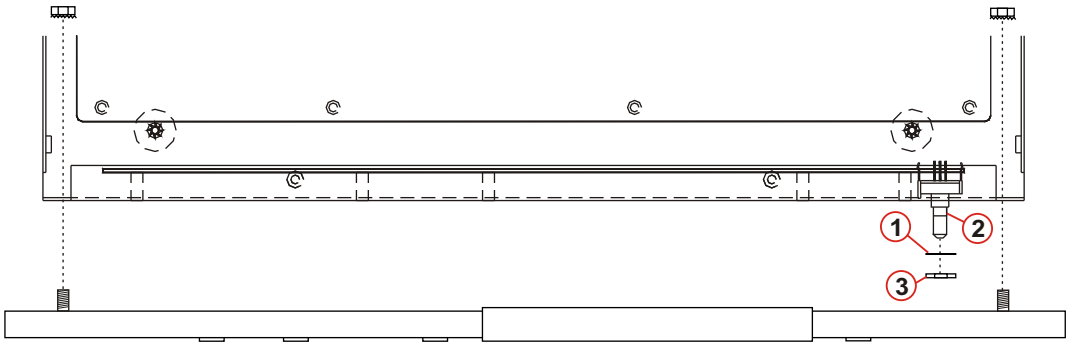
FACE PLATE ASSEMBLY

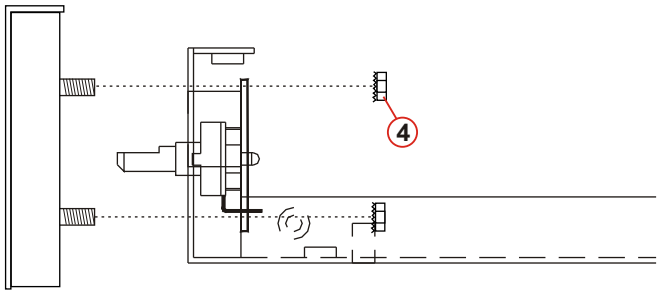
CP-35



1 MS-2347 PHILIPS
2 L103XR03
3 L104XR02

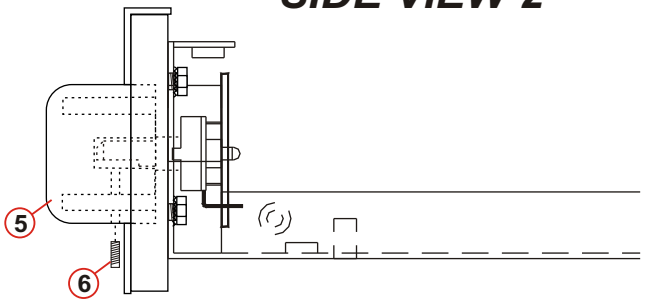
TOP VIEW





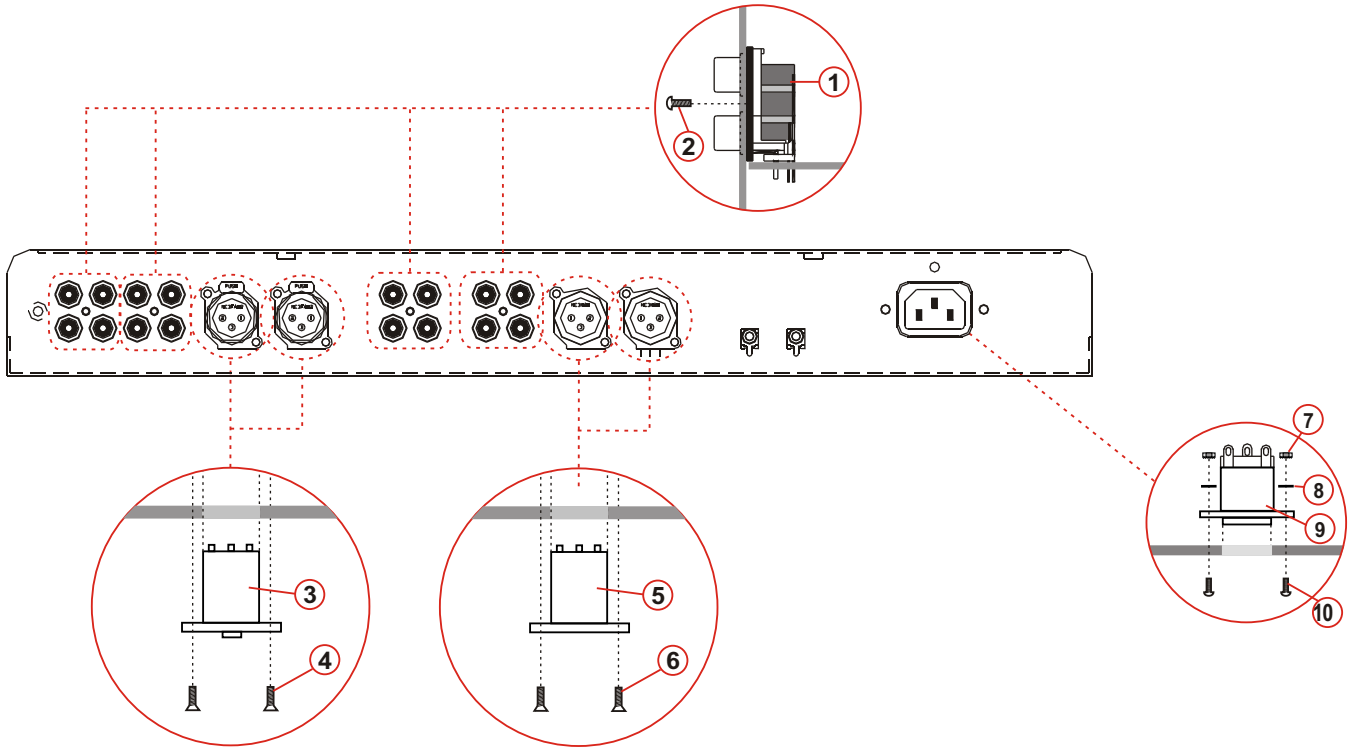
SIDE VIEW 1

SIDE VIEW 2

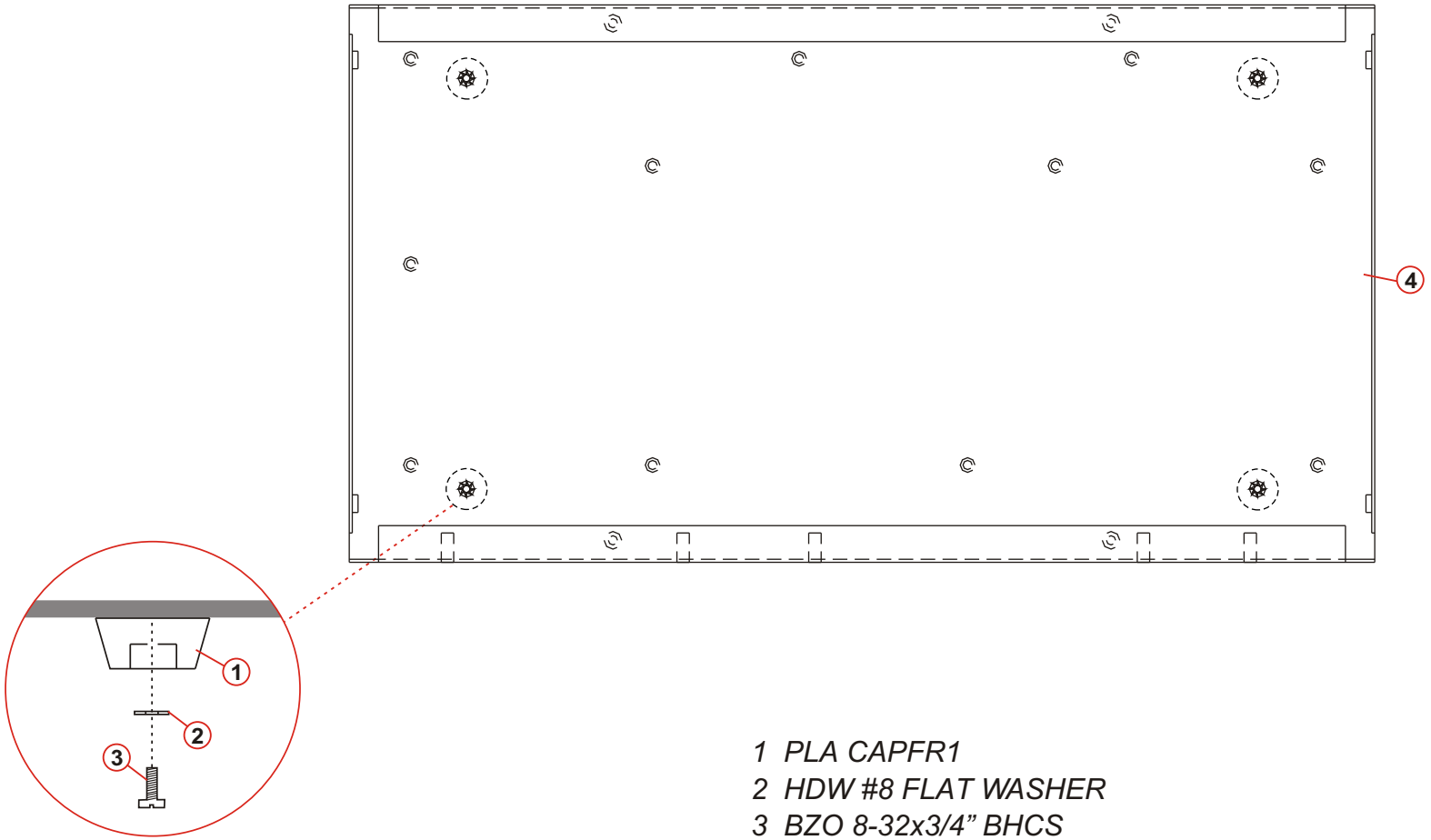


1
2
3
4
5 L156XR01-S
6

CHASSIS REAR VIEW

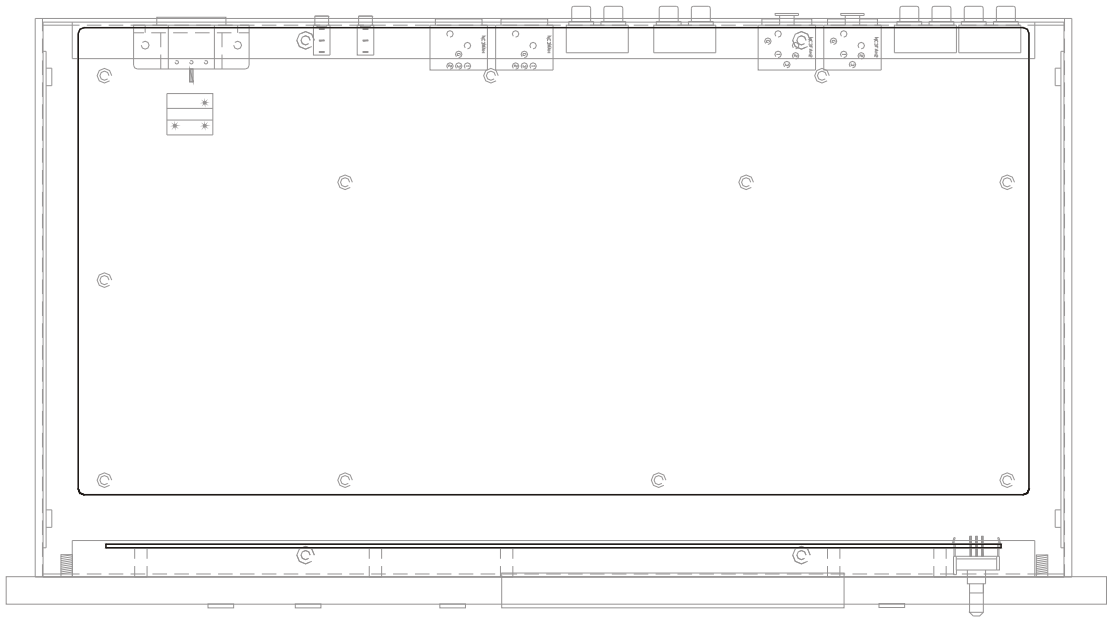


TOP VIEW

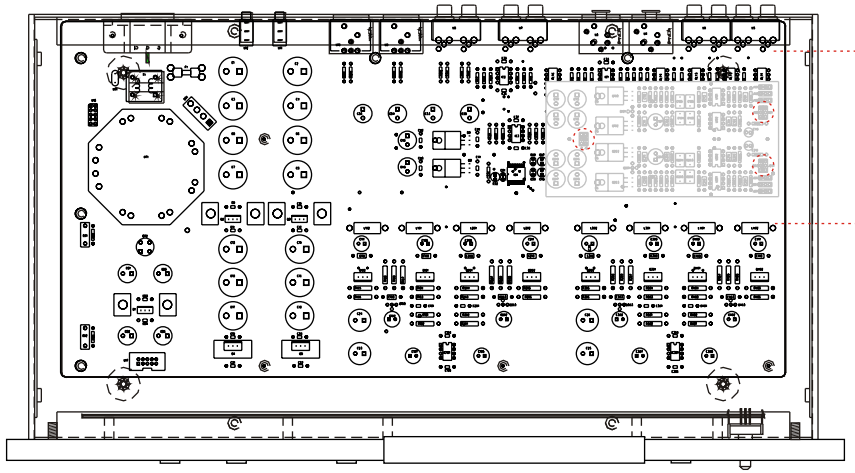


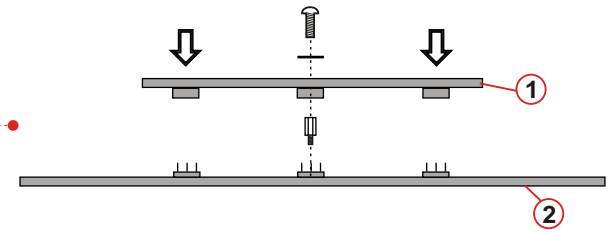
1 PLA CAPFR1
2 HDW #8 FLAT WASHER
3 BZO 8-32x3/4" BHCS
4 L101XR04

TOP VIEW



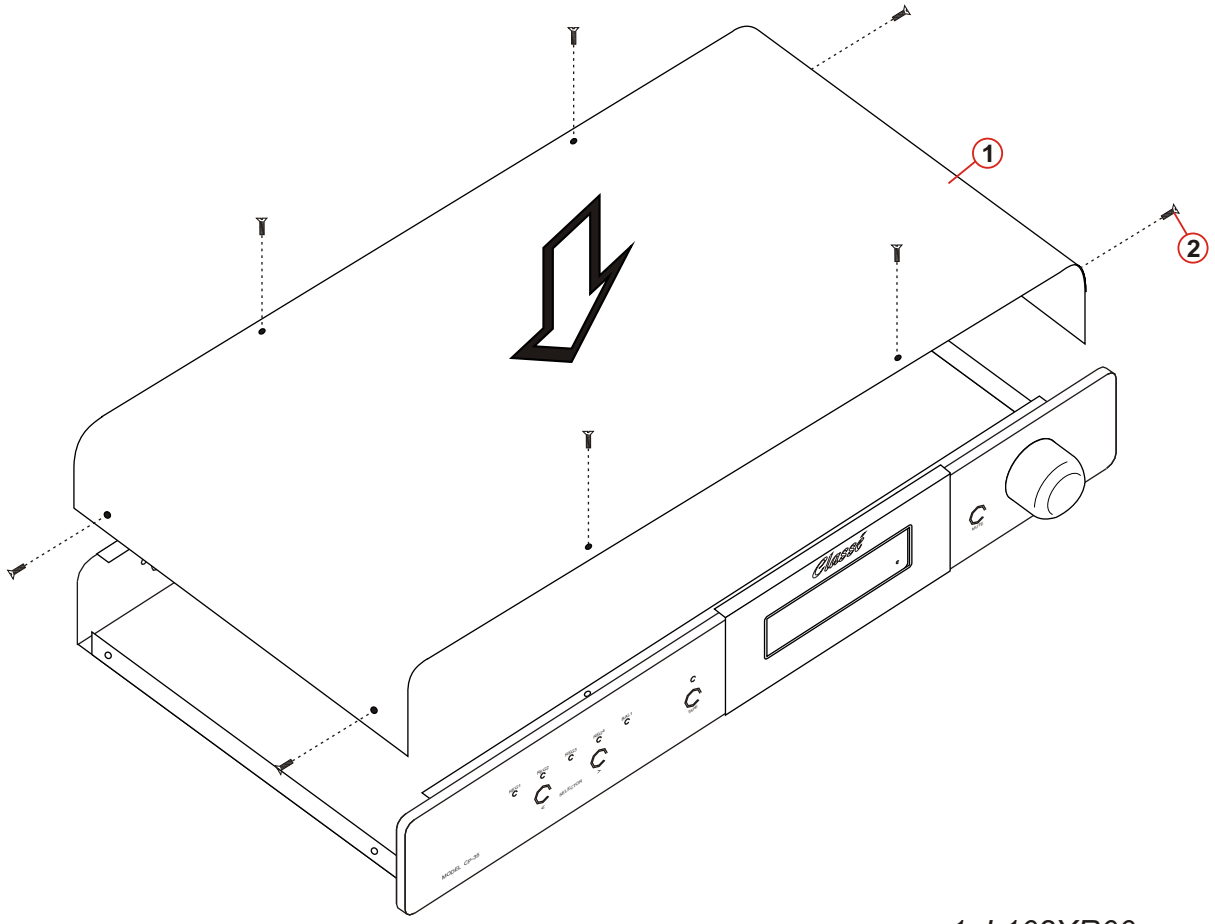
1 AVR BO51XR02
2 AVR BO50XR03
3 AVR BO1CXR00
4 TRANSFORMER





SIDE VIEW

1
2



1 L102XR00
2

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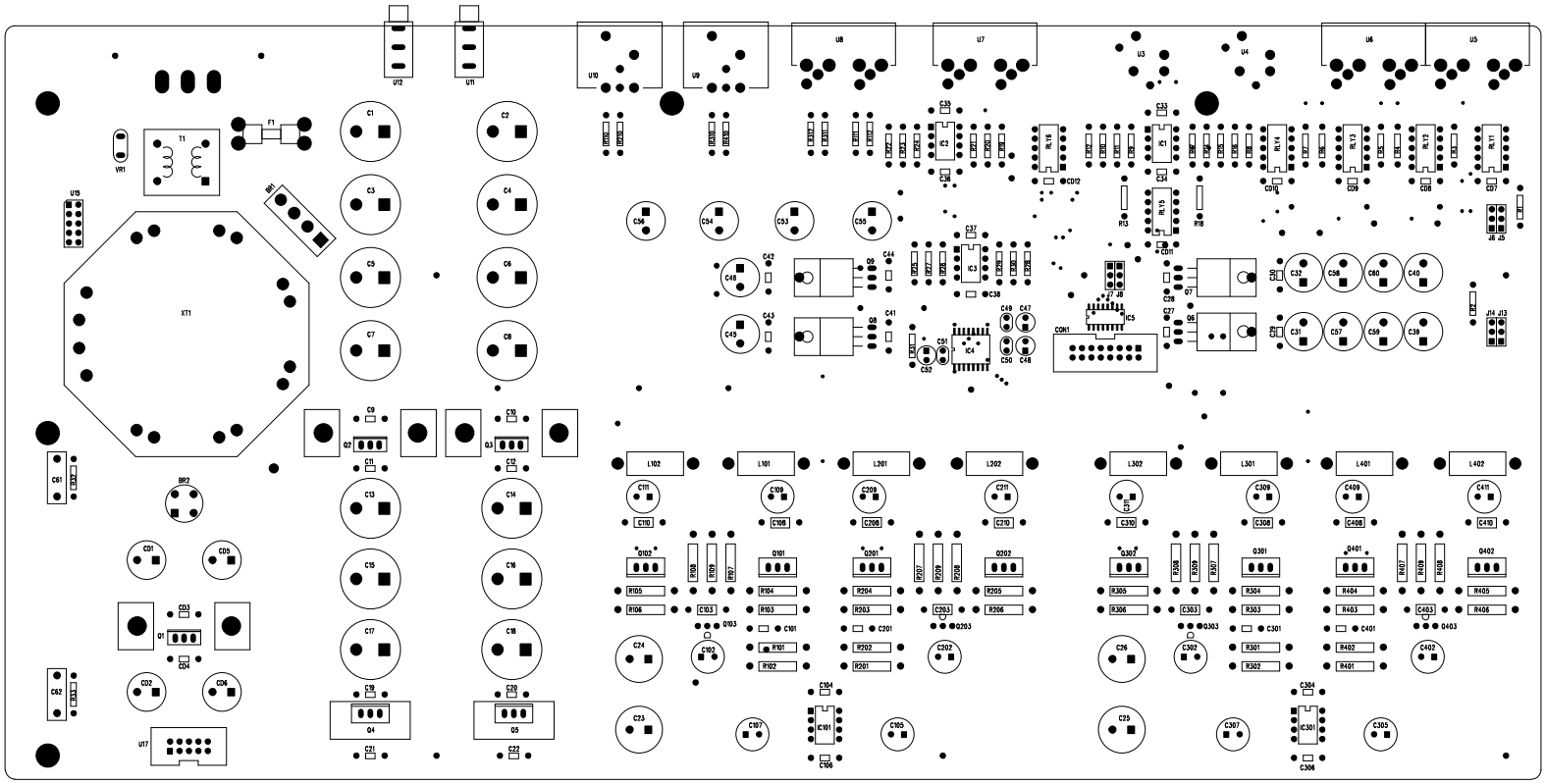
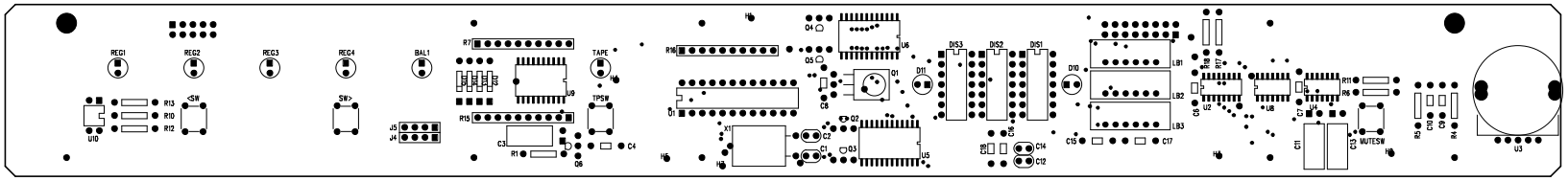
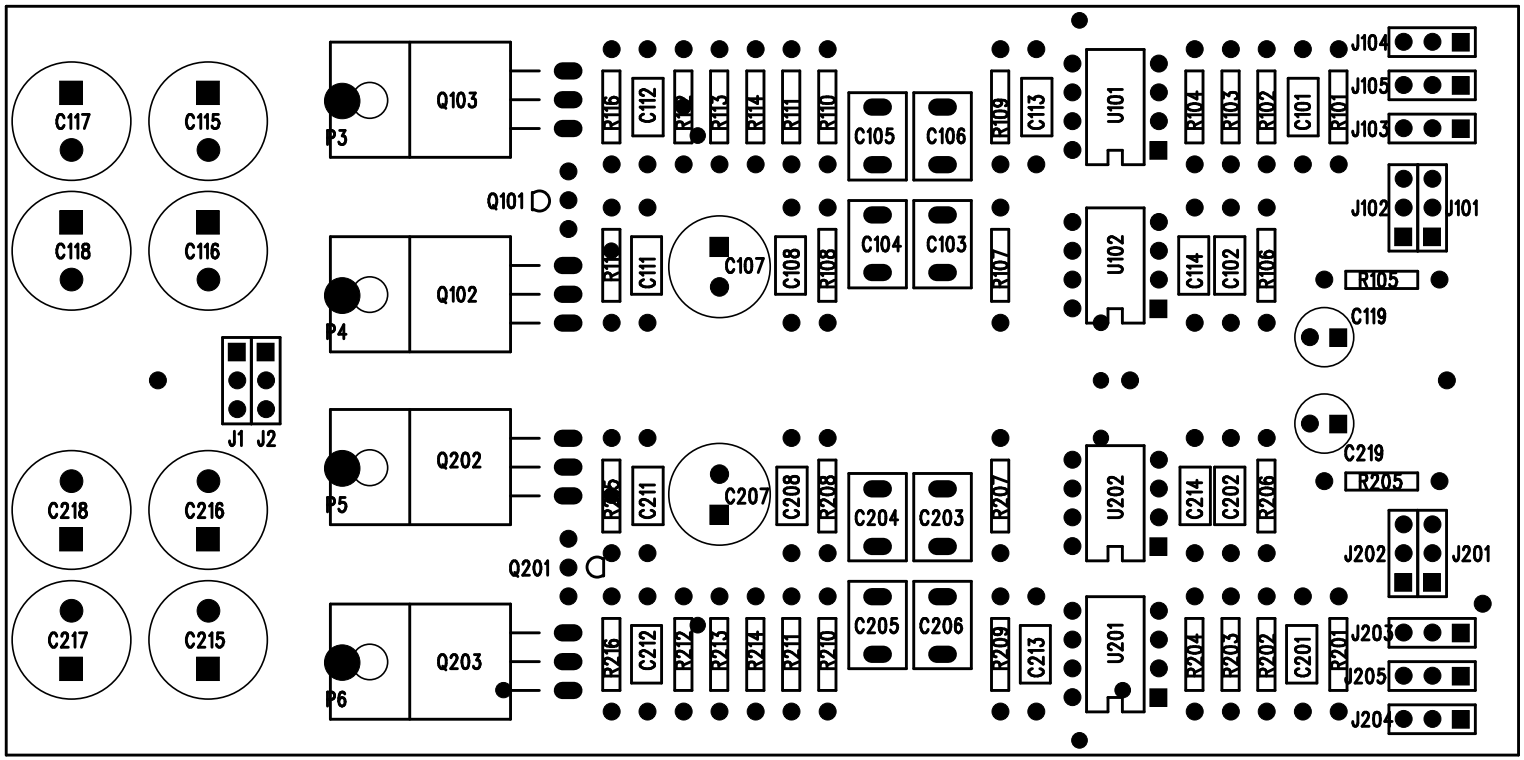
PC BOARDS



B103XR02 FRONT PCB




C117
C115
C118
C116
C218
C216
C217
C215
J1
J2
P3
P4
P5
P6
Q103
Q102
Q202
Q203
Q101
Q201
R116
C112
R112
R113
R114
R111
R110
C105
C106
C107
C108
R108
C104
C103
R109
C113
U101
R104
R103
R102
C101
R101
J104
J105
J103
J102
J101
R105
C119
C219
R205
J202
J201
J203
J205
J204
R107
U102
C114
C102
R106
R216
C212
R212
R213
R214
R211
R210
C205
C206
C211
C208
R208
C204
C203
C207
R207
U202
C214
C202
R206
R209
C213
U201
R204
R203
R202
C201
R201

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TESTING PROCEDURES

INSPECTION

Visually check all parts for: solder bridges or splashes, backwards, missing components and component orientation.

Power supply voltages

Apply 30 VAC & check polarities
Apply 60 VAC check voltages
Apply 120 VAC

Q1 => 7805
CD3 => +12V
CD4 => +5V

Q2 => 7818
C9 => +26V
C11 => +18V

Q3 => 7918
C10 => -26V
C12 => -18V

Q4 => 7815
C20 => -18V
C22 => -15V

Q5 => 7915
C20 => -18V
C22 => -15V

Q9 => 7905
C42 => -12V
C44 => -15V

1. Before final test unit was 4 days on burn-in-bench with music.
2. Take the unit from burn-in-bench to Q.C and play it immediately. Keep the line 120V A.C.
3. Check physically and check the components.
   -check all capacitor and devices direction. Capacitor stand up right way i.e. check co-solder.
   -check any missing parts.
   -check all fuse sockets.
   -check main board tight up with screw and washer.
   -check any screw missing.
   -check balance lock working smoothly.
   -check all output transistors position with pad.
   -check main transistors position with pad.
   -check main transformer tight very well.
4. Adjust bias 26mV for every output devices for both channels. Wait 7 to 8 minutes after each adjustment. Also adjust offset to 0mV.
5. Measure rail and pre-driver voltage.
6. Measure A.C voltage for bridge.
7. Measure supply voltage for relays. +15V and 15V for both channels. +12V and 12V.
8. Measure reference voltage 8.1V on both channels.
9. Measure reference voltage for protection 78V.
10. After setting the bias, connect load and input signal. Check output signal. Check phase with input signal.
11. Measure frequency response, slew rate, gain, signal to noise ratio.
12. Check the output signal from 20Hz to 20KH with load in following combination. Also measure the output power.
    Regegur-stereo
    Balance-stereo
    Regegur-mono
    Balance-mono
13. Check phone-jack.
14. Check protection on both channels.
15. Check noise with speaker.
16. Put the jumpers and varistor for required A.C voltage.
17. Plug unit again and check rail and pre-driver voltage.

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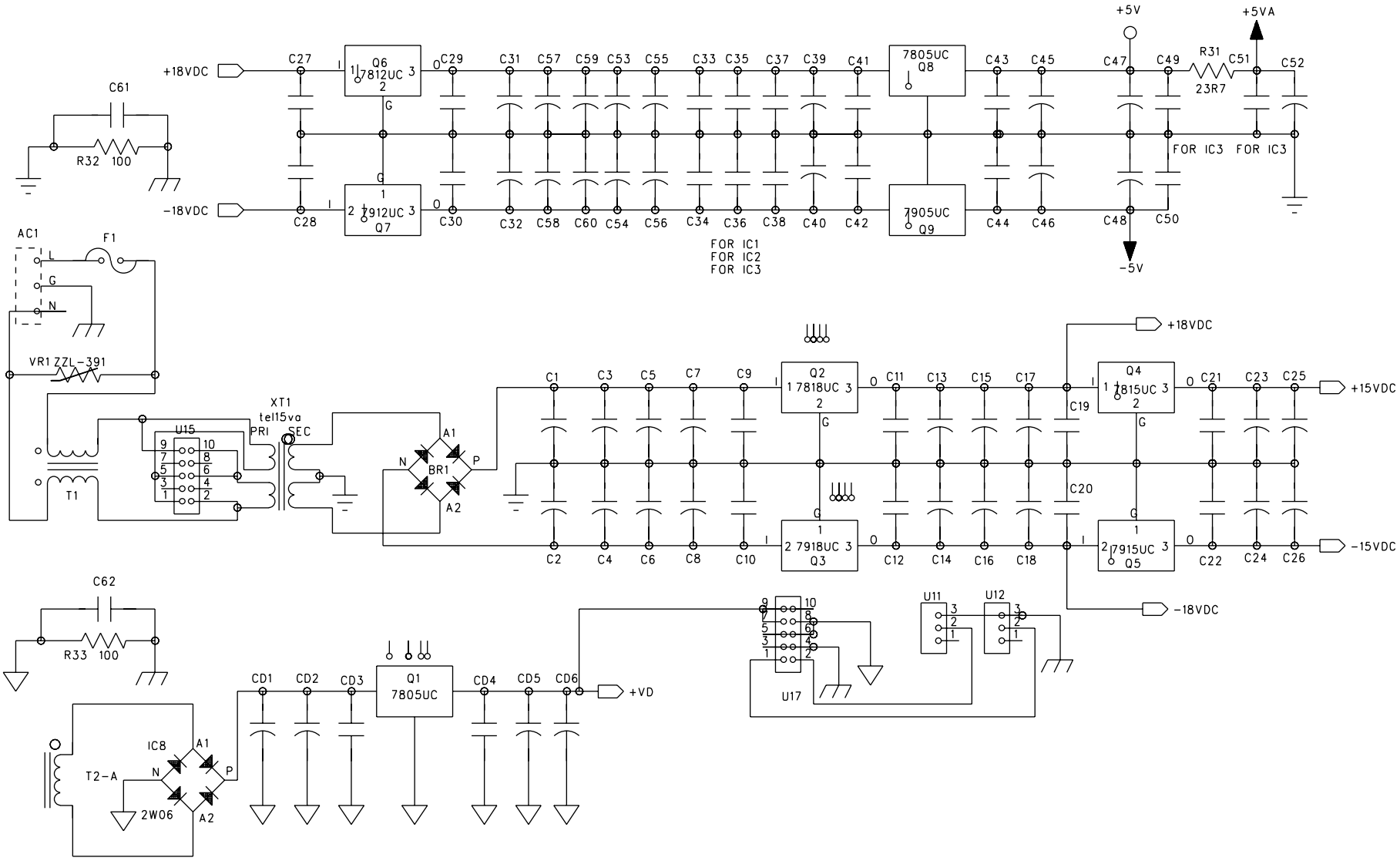
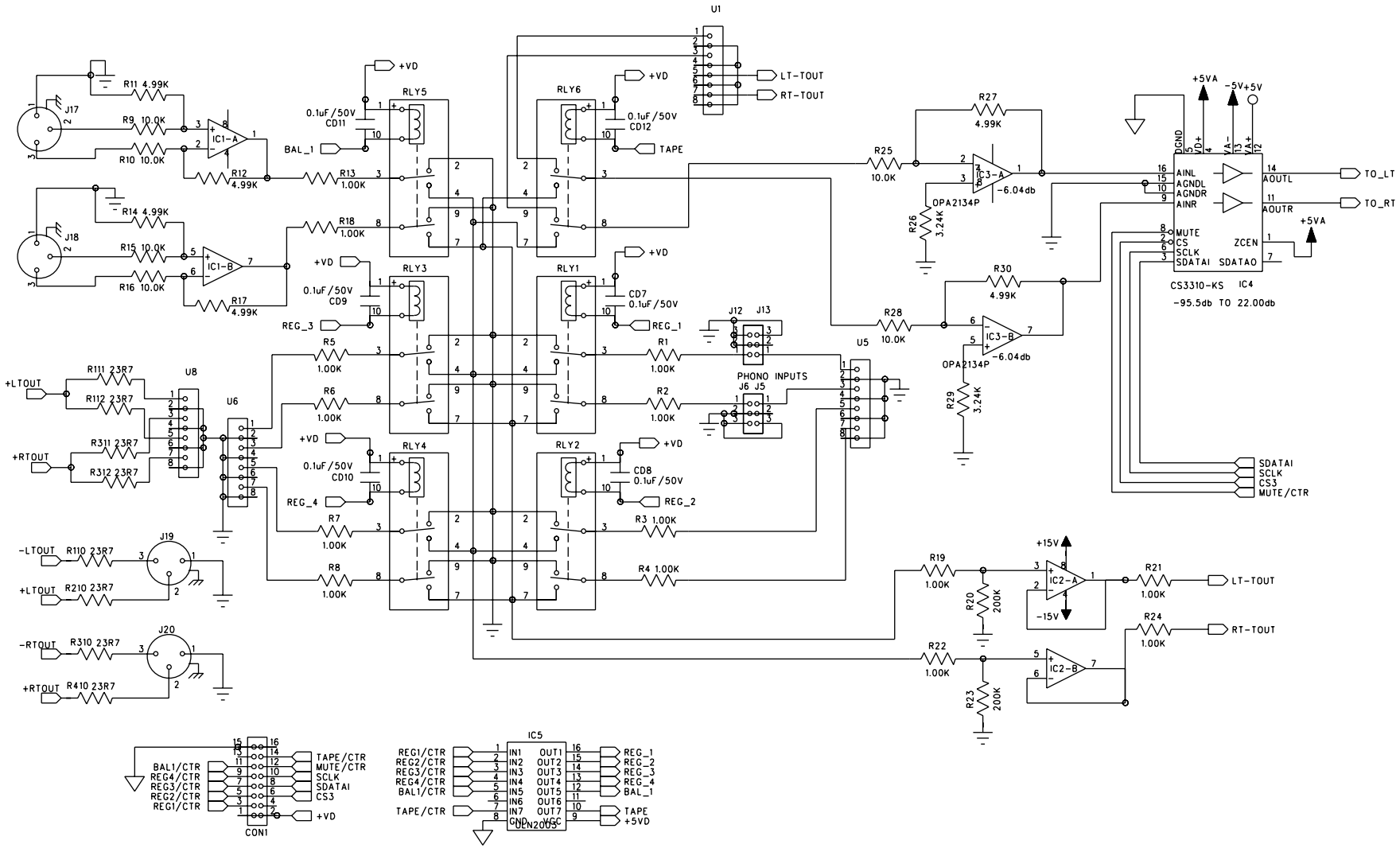
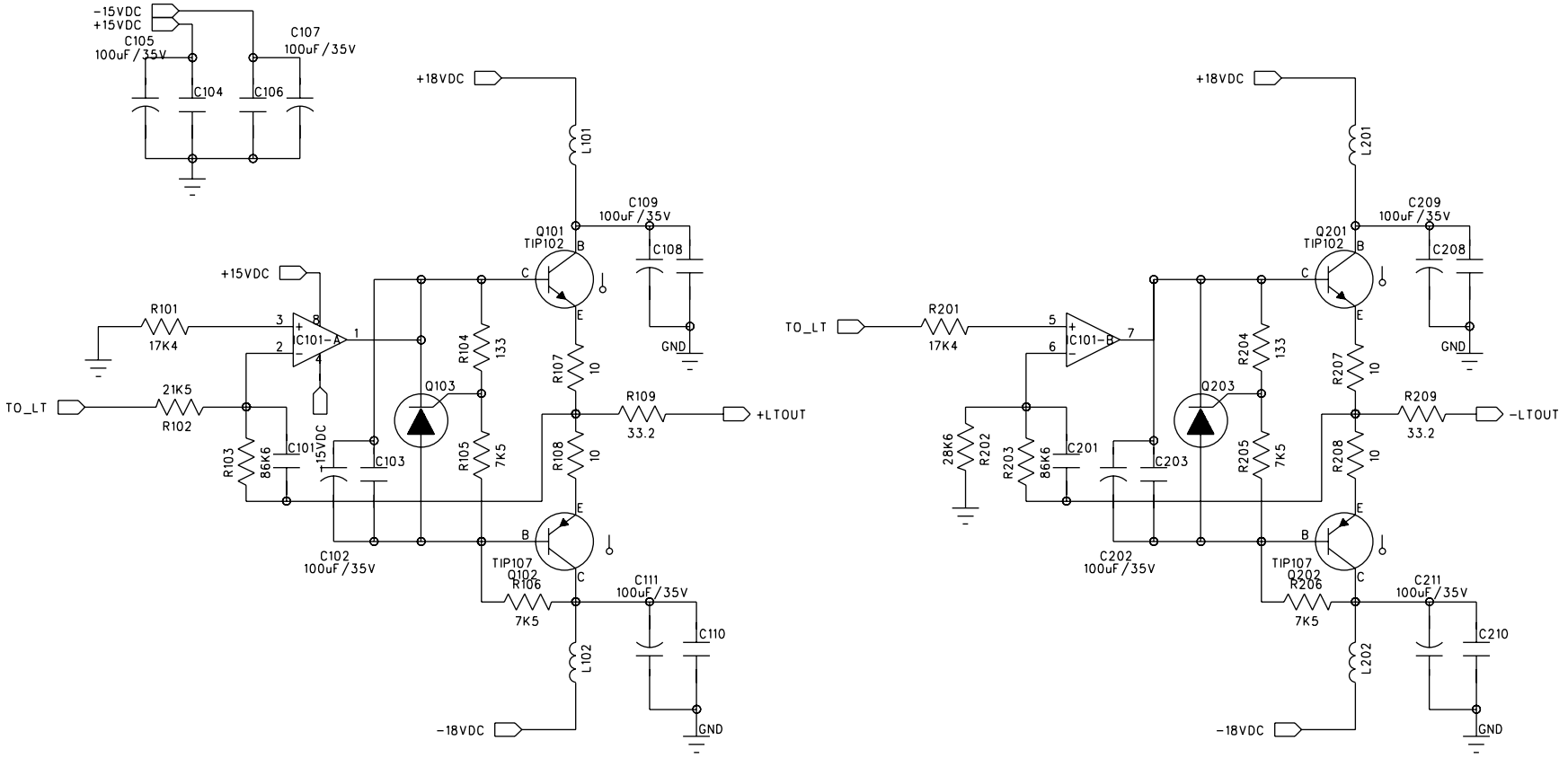
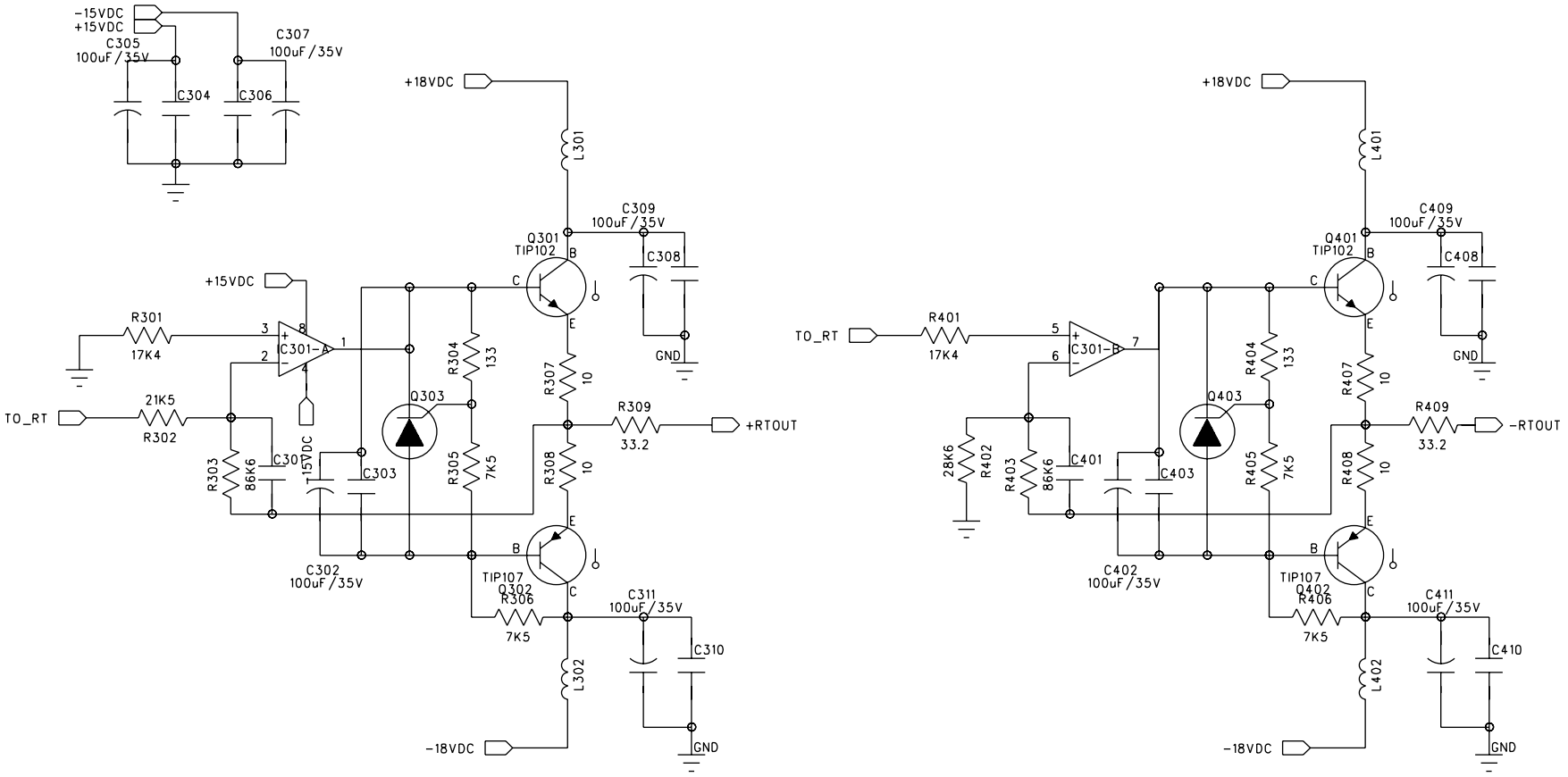
DIAGRAMS

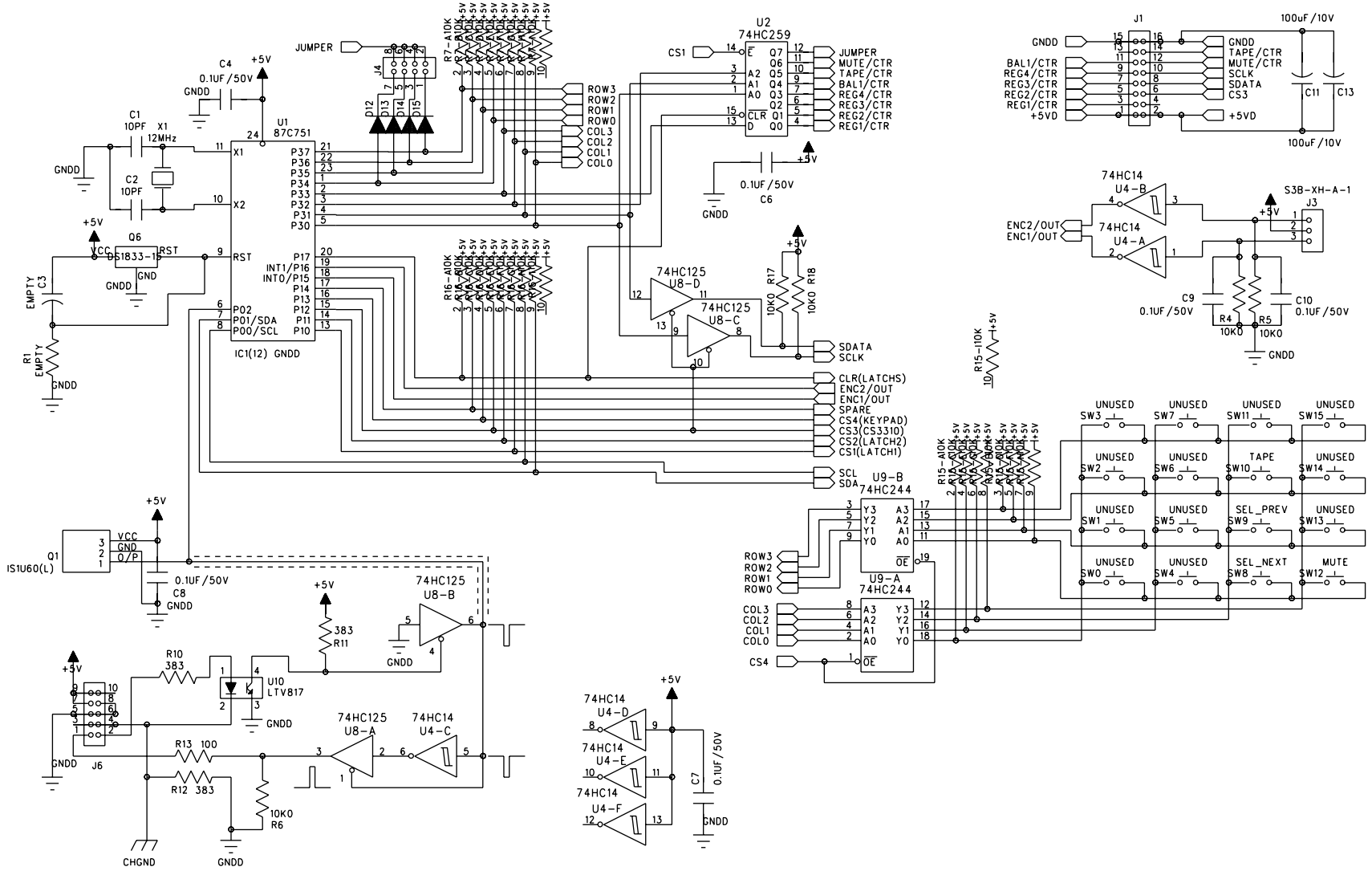

+18VDC
-18VDC
C27
C28
Q6
7812UC
Q7
7912UC
C29
C30
C31
C32
C57
C58
C59
C60
C53
C54
C55
C56
C33
C34
C35
C36
C37
C38
C39
C40
C41
C42
7805UC
Q8
7905UC
Q9
C43
C44
C45
C46
+5V
-5V
C47
C48
C49
C50
R31
23R7
C51
+5VA
C52
FOR IC3
FOR IC3
FOR IC1
FOR IC2
FOR IC3
C61
R32 100
AC1
L
G
N
F1
VR1 ZZL-391
XT1
tel15va
PRI
SEC
U15
T1
A1
N
P
A2
BR1
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
Q2
7818UC
Q3
7918UC
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
Q4
7815UC
Q5
7915UC
C21
C22
C23
C24
C25
C26
+18VDC
+15VDC
-15VDC
-18VDC
C62
R33 100
CD1
CD2
CD3
Q1
7805UC
CD4
CD5
CD6
+VD
IC8
T2-A
2W06
U17
U11
U12

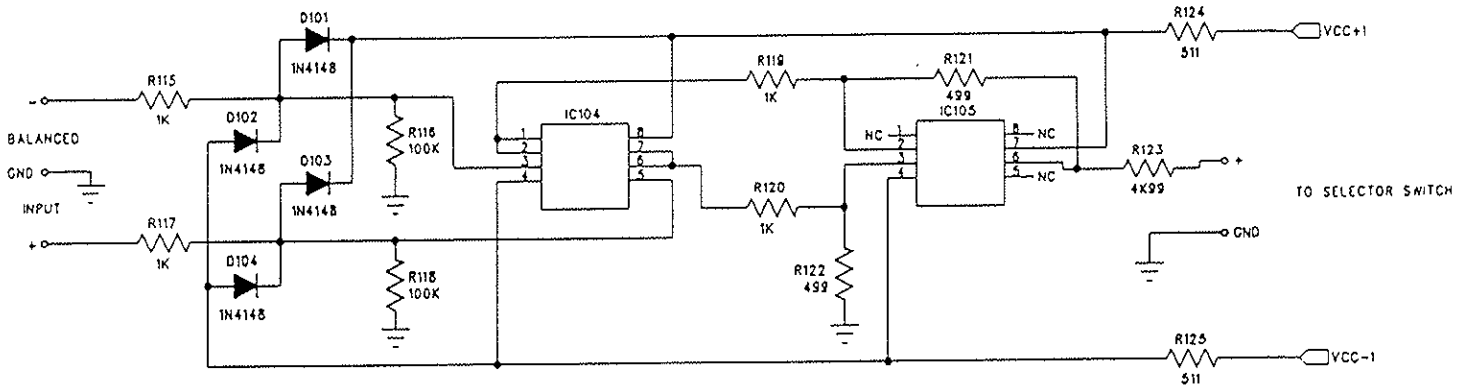

U1
LT-TOUT
RT-TOUT
+VD
RLY5
RLY6
RLY3
RLY1
RLY4
RLY2
0.1uF/50V
CD11
CD12
CD9
CD7
CD10
CD8
BAL_1
TAPE
REG_3
REG_1
REG_4
REG_2
J17
J18
J19
J20
R11 4.99K
R9 10.0K
R10 10.0K
R12 4.99K
R13 1.00K
R14 4.99K
R15 10.0K
R16 10.0K
R17 4.99K
R18 1.00K
IC1-A
IC1-B
R5 1.00K
R6 1.00K
R7 1.00K
R8 1.00K
R1 1.00K
R2 1.00K
R3 1.00K
R4 1.00K
J12 J13
J6 J5
PHONO INPUTS
U5
U6
U8
+LTOUT
+RTOUT
-LTOUT
-RTOUT
R111 23R7
R112 23R7
R311 23R7
R312 23R7
R110 23R7
R210 23R7
R310 23R7
R410 23R7
R25 10.0K
R27 4.99K
R26 3.24K
IC3-A
-6.04db
OPA2134P
R28 10.0K
R30 4.99K
R29 3.24K
IC3-B
+5VA
-5V+5V
DGND
VD+
VA-
VA+
AINL
AGNDL
AGNDR
AINR
MUTE
CS
SCLK
SDATAI
SDATAO
AOUTL
AOUTR
ZCEN
TO_LT
TO_RT
CS3310-KS
IC4
-95.5db TO 22.00db
SDATAI
SCLK
CS3
MUTE/CTR
R19 1.00K
R20 200K
R22 1.00K
R23 200K
IC2-A
IC2-B
+15V
-15V
R21 1.00K
R24 1.00K
LT-TOUT
RT-TOUT
CON1
BAL1/CTR
REG4/CTR
REG3/CTR
REG2/CTR
REG1/CTR
TAPE/CTR
MUTE/CTR
SCLK
SDATAI
CS3
+VD
IC5
REG1/CTR
REG2/CTR
REG3/CTR
REG4/CTR
BAL1/CTR
TAPE/CTR
IN1 OUT1
IN2 OUT2
IN3 OUT3
IN4 OUT4
IN5 OUT5
IN6 OUT6
IN7 OUT7
GND VCC
ULN2003
REG_1
REG_2
REG_3
REG_4
BAL_1
TAPE
+5VD

MAINBOARD PREAMP (LEFT) - B101XR02 (3)

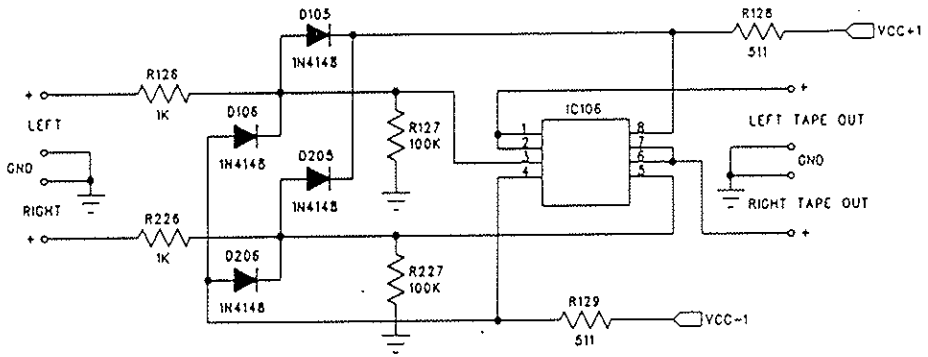



-15VDC
+15VDC
C305
100uF/35V
C307
100uF/35V
C304
C306
+18VDC
L301
C309
100uF/35V
Q301
TIP102
C308
+15VDC
R301
17K4
C301-A
R304
133
R307
10
GND
21K5
R302
TO_RT
Q303
R309
33.2
+RTOUT
R303
86K6
C304
15VDC
C303
R305
7K5
R308
10
C302
100uF/35V
TIP107
Q302
R306
7K5
C311
100uF/35V
C310
L302
-18VDC
GND
+18VDC
L401
C409
100uF/35V
Q401
TIP102
C408
R401
17K4
TO_RT
C301-B
R404
133
R407
10
GND
Q403
R409
33.2
-RTOUT
28K6
R402
R403
86K6
C401
C403
R405
7K5
R408
10
C402
100uF/35V
TIP107
Q402
R406
7K5
C411
100uF/35V
C410
L402
-18VDC
GND


U1
87C751
U2
74HC259
JUMPER
J4
D12
D13
D14
D15
C4
0.1UF/50V
GNDD
+5V
C1
10PF
X1
12MHz
C2
10PF
Q6
DS1833-15
VCC
RST
GND
C3
EMPTY
R1
EMPTY
IC1(12) GNDD
ROW3
ROW2
ROW1
ROW0
COL3
COL2
COL1
COL0
MUTE/CTR
TAPE/CTR
BAL1/CTR
REG4/CTR
REG3/CTR
REG2/CTR
REG1/CTR
C6
74HC125
U8-D
74HC125
U8-C
R17
10K0
R18
10K0
SDATA
SCLK
CLR(LATCHS)
ENC2/OUT
ENC1/OUT
SPARE
CS4(KEYPAD)
CS3(CS3310)
CS2(LATCH2)
CS1(LATCH1)
SCL
SDA
J1
100uF/10V
C11
C13
+5VD
74HC14
U4-B
74HC14
U4-A
S3B-XH-A-1
J3
ENC2/OUT
ENC1/OUT
C9
0.1UF/50V
C10
0.1UF/50V
R4
10K0
R5
10K0
R15-10K
10
U9-B
74HC244
U9-A
74HC244
UNUSED
TAPE
SEL_PREV
SEL_NEXT
MUTE
SW0
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
SW13
SW14
SW15
Q1
IS1U60(L)
VCC
GND
O/P
0.1UF/50V
C8
74HC125
U8-B
383
R11
R10
383
U10
LTV817
J6
74HC125
U8-A
74HC14
U4-C
R13 100
R12 383
10K0
R6
CHGND
74HC14
U4-D
74HC14
U4-E
74HC14
U4-F
C7
0.1UF/50V



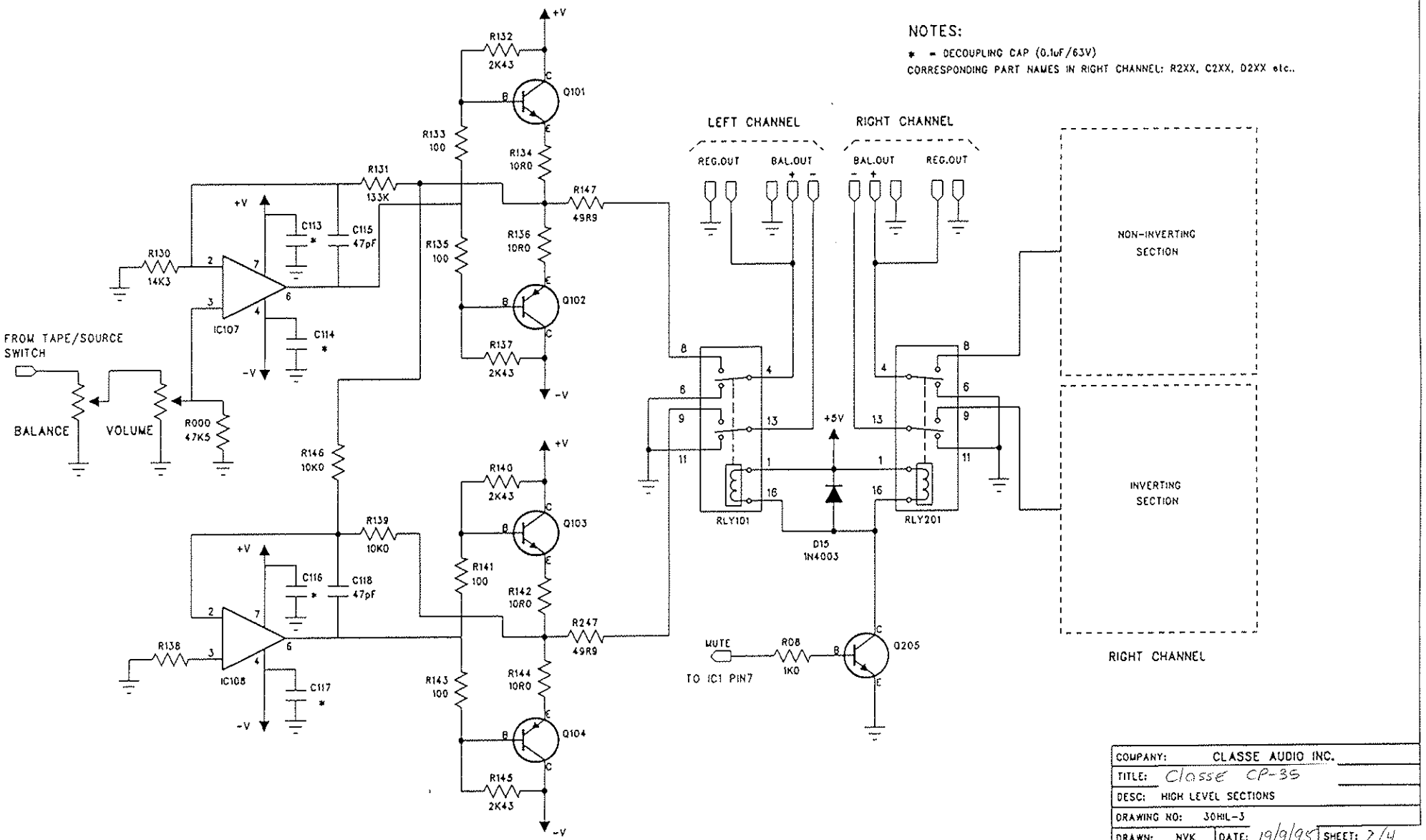
BALANCED INPUT (LEFT CH.)



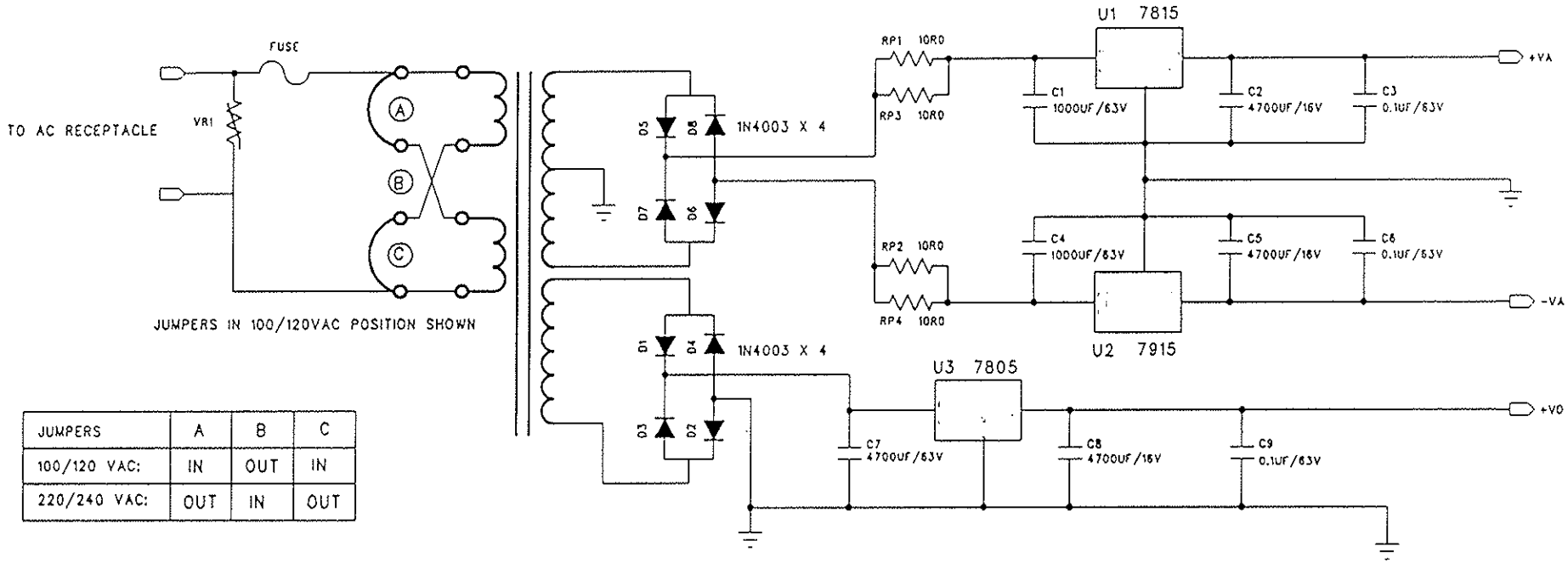
TAPE OUT BUFFER (BOTH CH.)

NOTES:
CORRESPONDING PART NAMES IN RIGHT CHANNEL: R2XX, C2XX, D2XX etc..

COMPANY:	CLASSE AUDIO INC.
TITLE:	Classe CP-35
DESC:	BALANCED INPUT / TAPE OUT BUFFER
DRAWING NO:	JOBUF-2
DRAWN: NVK	DATE: 19/9/95 SHEET: 1/4

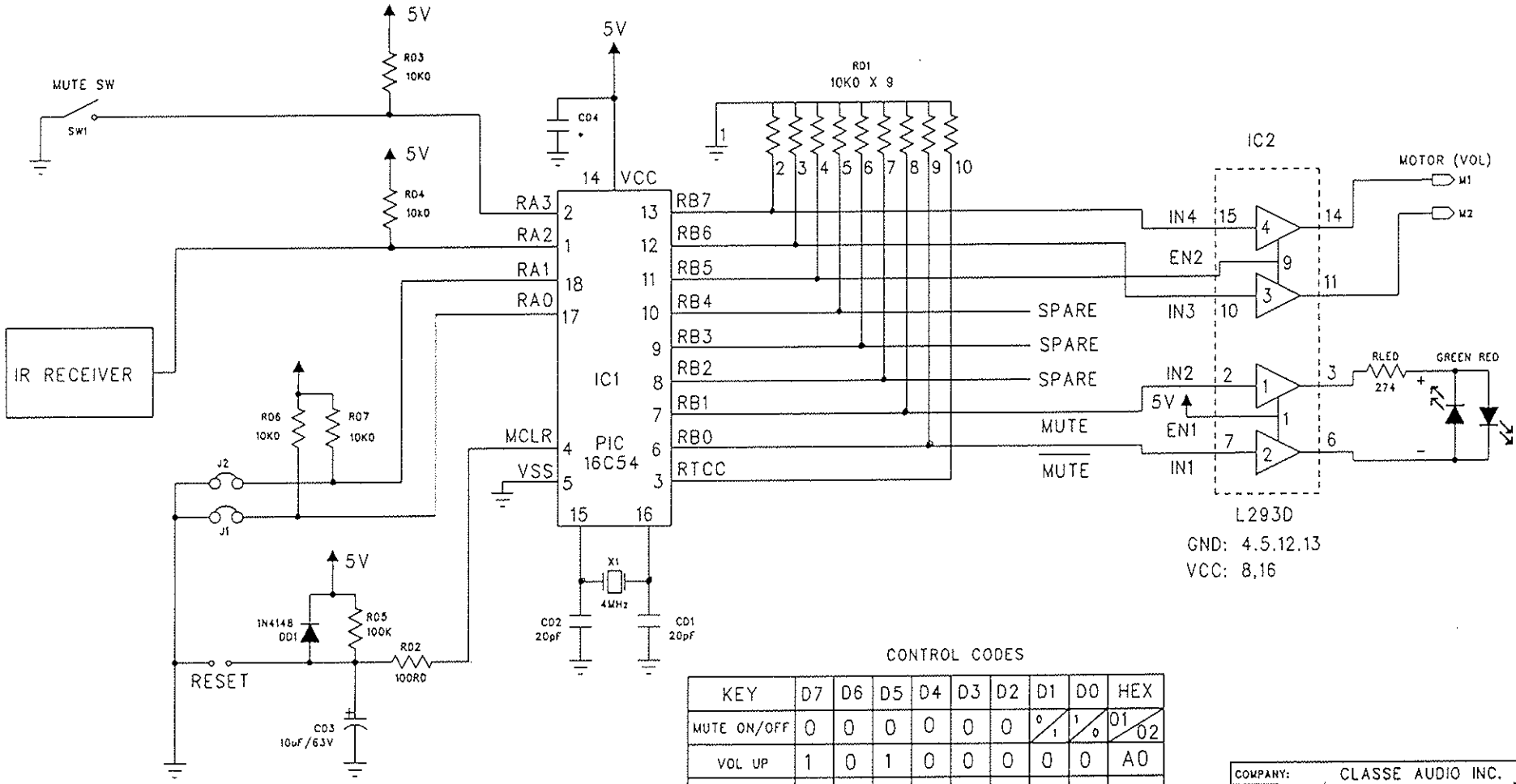


COMPANY:	CLASSE AUDIO INC.
TITLE:	Classe CP-35
DESC:	HIGH LEVEL SECTIONS
DRAWING NO:	30HIL-3
DRAWN: NVK	DATE: 19/9/95 SHEET: 2/4



JUMPERS	A	B	C
100/120 VAC:	IN	OUT	IN
220/240 VAC:	OUT	IN	OUT

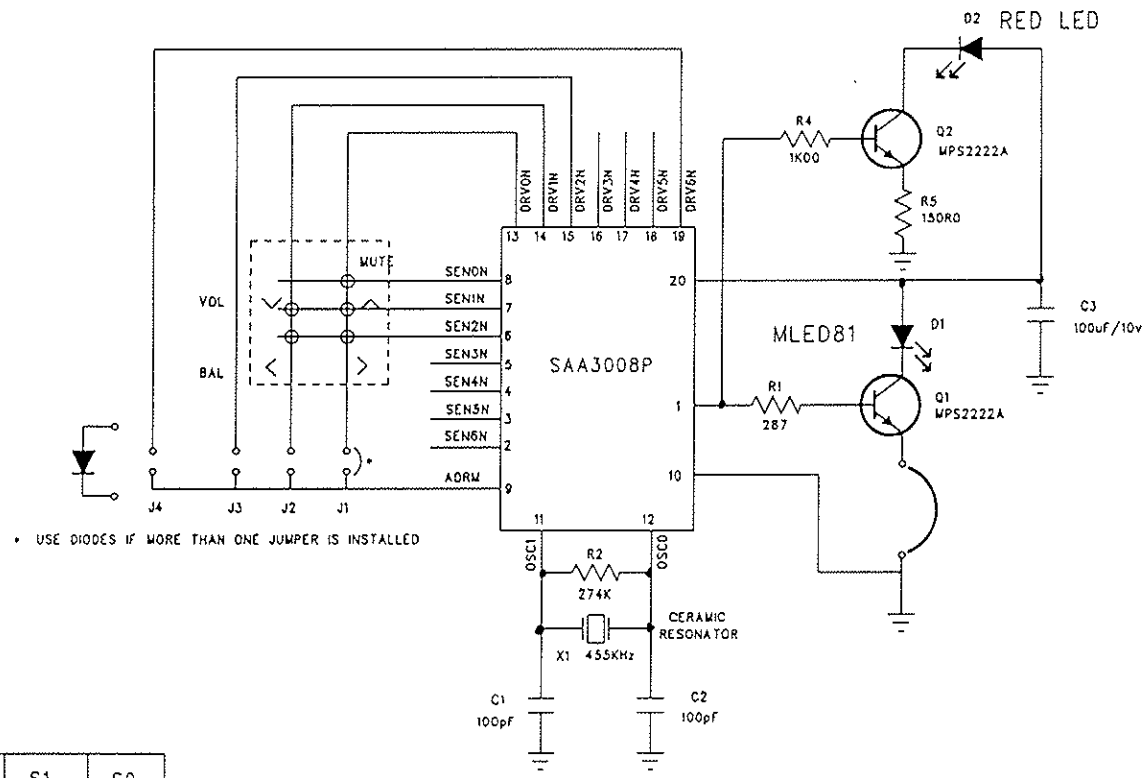
COMPANY:	CLASSE AUDIO INC.
TITLE:	Classe CP-35
DESC:	POWER SUPPLY SECTION
DRAWING NO:	30PSS-4
DRAWN: NVK	19/9/95 SHEET: 3/4



CONTROL CODES

KEY	D7	D6	D5	D4	D3	D2	D1	D0	HEX
MUTE ON/OFF	0	0	0	0	0	0	0/1	1/0	01/02
VOL UP	1	0	1	0	0	0	0	0	A0
VOL DOWN	0	1	1	0	0	0	0	0	60
BAL R	1	0	0	1	0	0	0	0	90
BAL L	0	1	0	1	0	0	0	0	50

COMPANY:	CLASSE AUDIO INC.
TITLE:	Classe CP-35
DESC:	MICROCONTROLLER
DRAWING NO:	30MIC-5
DRAWN: NVK	19/9/95
SHEET:	4/4



SUB-SYSTEM ADDRESSES

JUMPER	IN	OUT	S2	S1	S0
ALL OUT			1	1	1
J1	X		0	0	0
J2	X		0	0	1
J3	X		0	1	0
J4		X	MODE 1 1		
	X		MODE 2 REF.		

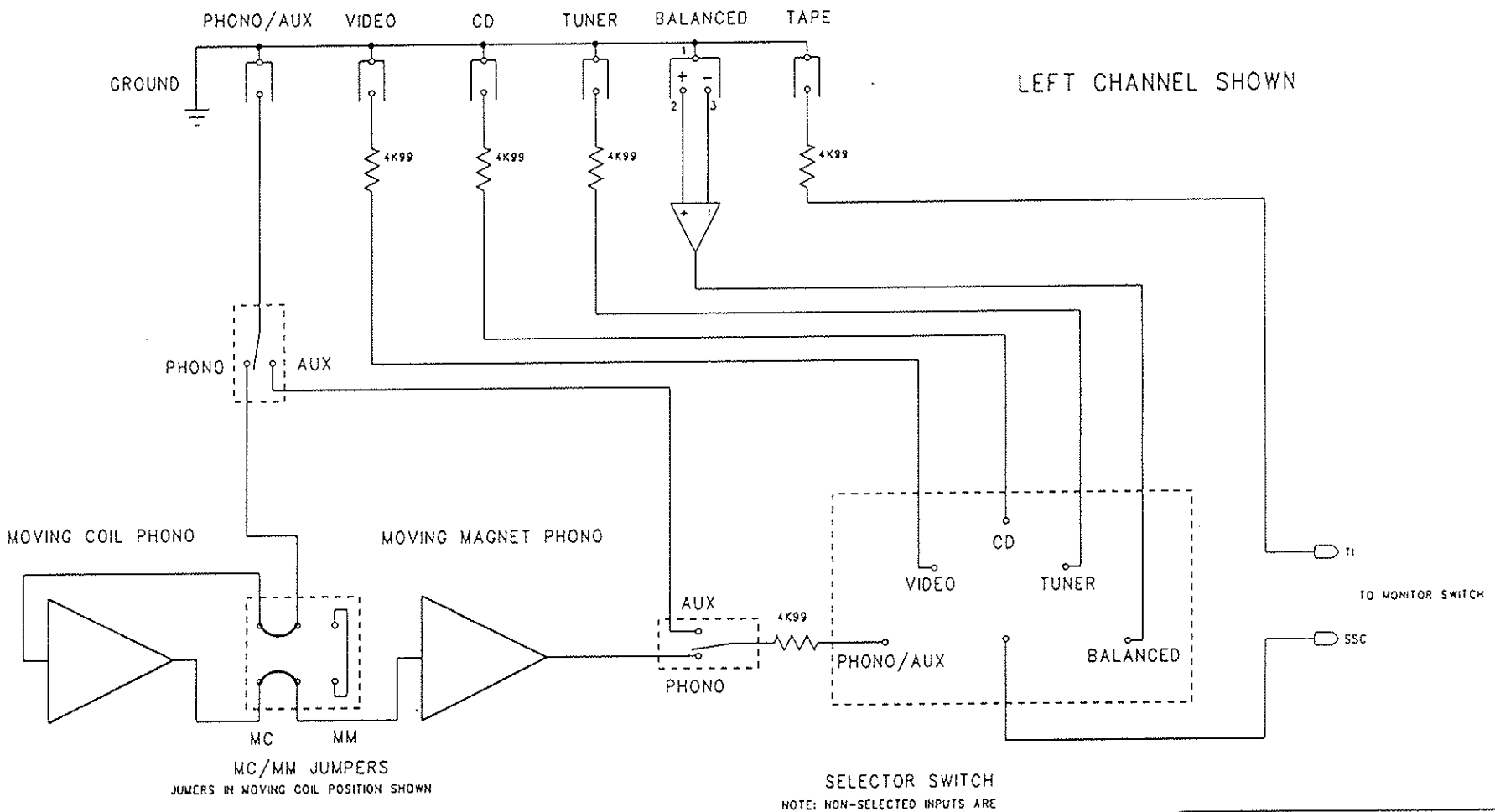
TRANSMITTED CODES

KEY	F	E	D	C	B	A	HEX
MUTE ON/OFF	0	0	0	0	0	0	00
VOL UP	0	0	1	0	0	0	08
VOL DOWN	0	0	1	0	0	1	09
BAL R	0	1	0	0	0	0	10
BAL L	0	1	0	0	0	1	11

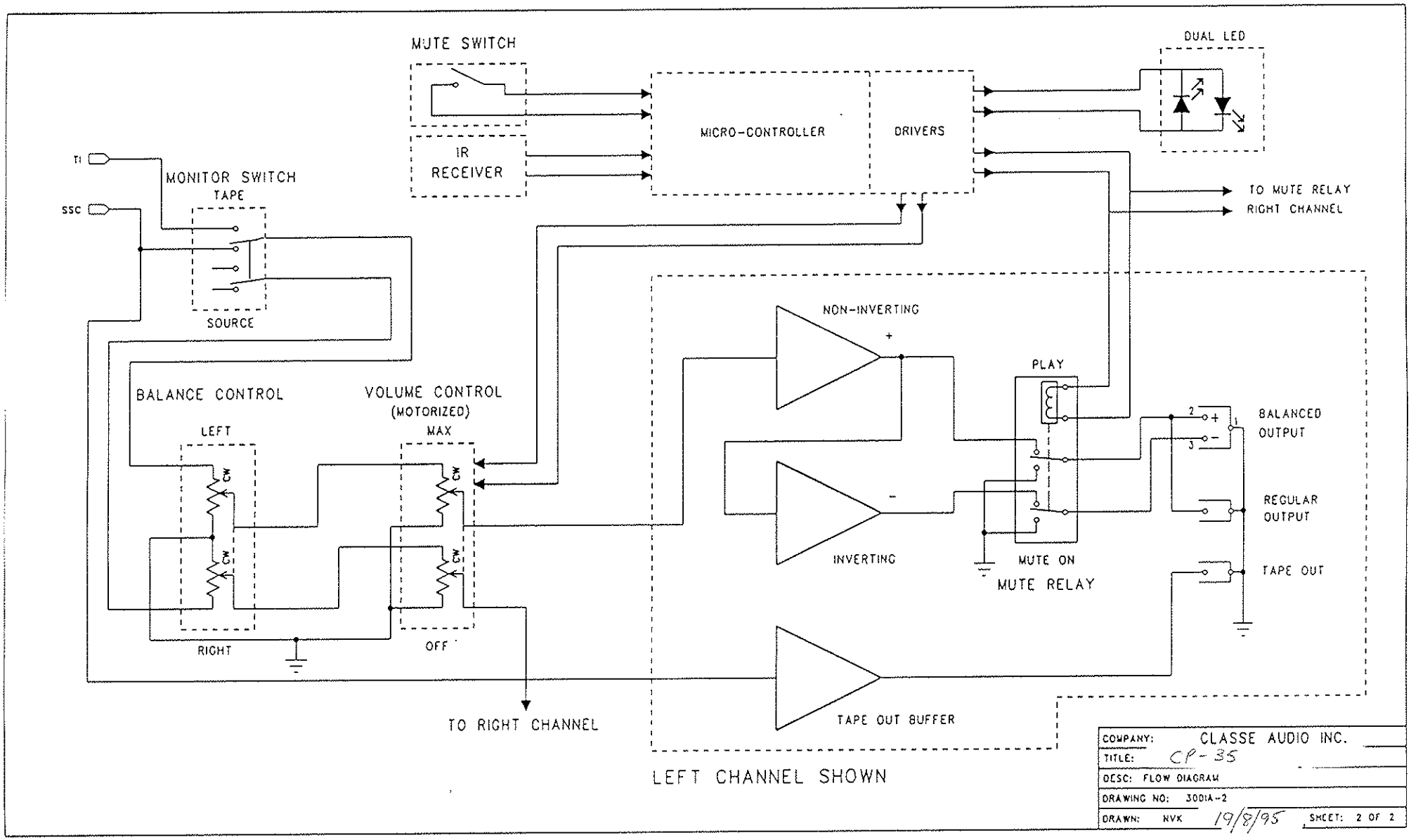
CONTROL CODES

D7	D6	D5	D4	D3	D2	D1	D0	HEX
0	0	0	0	0	0	0/1	1/0	01/02
1	0	1	0	0	0	0	0	A0
0	1	1	0	0	0	0	0	60
1	0	0	1	0	0	0	0	90
0	1	0	1	0	0	0	0	50

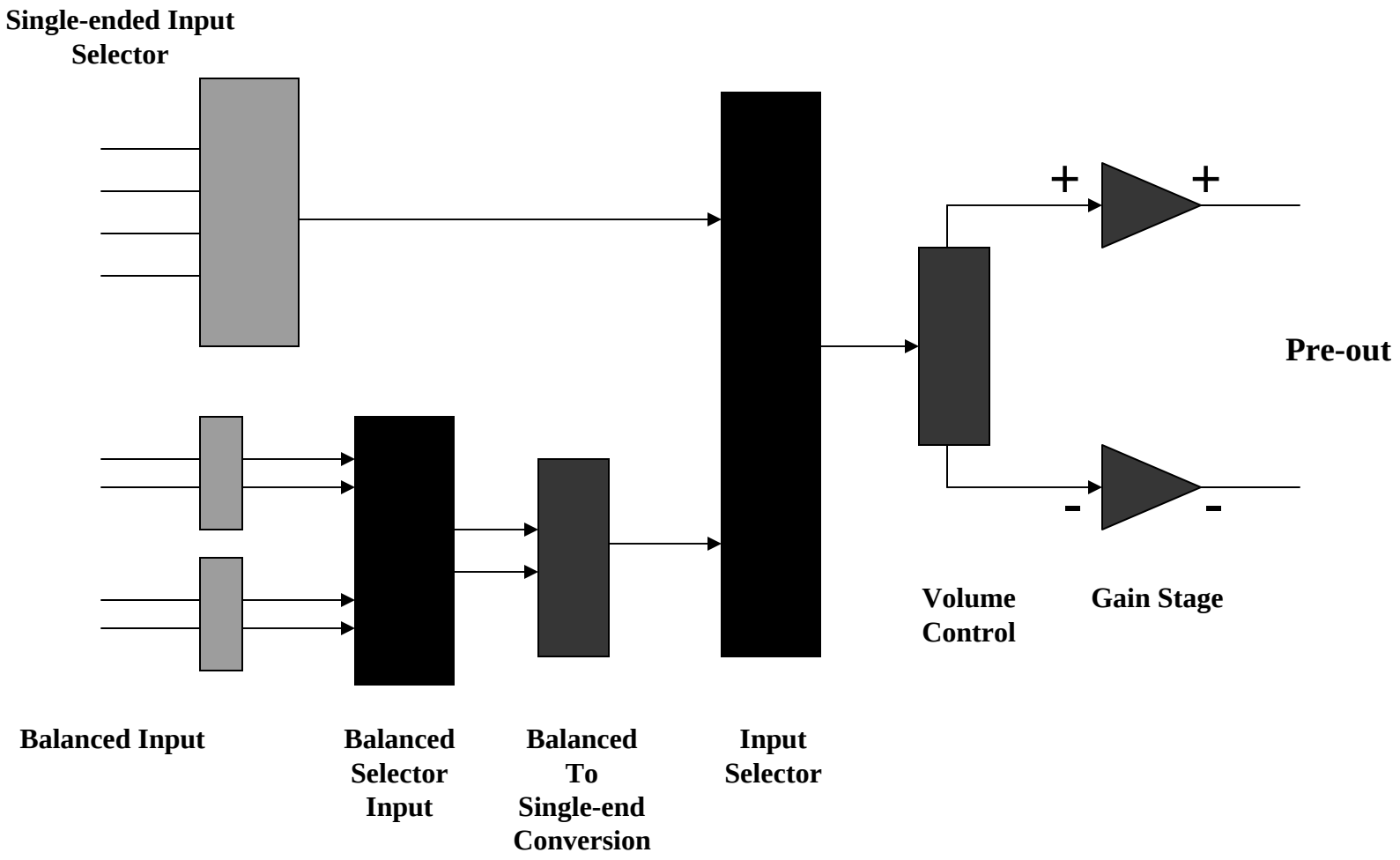
COMPANY:	CLASSE AUDIO INC.
TITLE:	REMOTE CONTROL UNIT
DESC:	TRANSMITTER CIRCUIT
DRAWING NO:	REM08
DRAWN: NVK	DATE: 19/9/95 SHEET: 1 OF 1



COMPANY:	CLASSE AUDIO INC.
TITLE:	CLASSE CP-35 PREAMPLIFIER
DESC:	FLOW DIAGRAM
DRAWING NO:	300IA-1
DRAWN: NVK	DATE: 19/9/95 SHEET: 1 OF 2


MUTE SWITCH
DUAL LED
IR RECEIVER
MICRO-CONTROLLER
DRIVERS
TO MUTE RELAY
RIGHT CHANNEL
TI
SSC
MONITOR SWITCH
TAPE
SOURCE
NON-INVERTING
+
PLAY
BALANCE CONTROL
VOLUME CONTROL
(MOTORIZED)
LEFT
MAX
CW
CW
CW
CW
2
+
3
−
1
BALANCED OUTPUT
REGULAR OUTPUT
TAPE OUT
INVERTING
−
MUTE ON
MUTE RELAY
RIGHT
OFF
TO RIGHT CHANNEL
TAPE OUT BUFFER
LEFT CHANNEL SHOWN
COMPANY: CLASSE AUDIO INC.
TITLE: CP-35
DESC: FLOW DIAGRAM
DRAWING NO: 3001A-2
DRAWN: NVK 19/8/95
SHEET: 2 OF 2

CP-35 Block Diagram



CP35 MAIN BOARD

(B101XR03)

1. INSPECTION

a) Visually check all parts for: solder bridges or splashes, backwards, missing components and component orientation.

2. Power supply voltages

a) Apply 30 VAC & check polarities
b) Apply 60 VAC check voltages
c) Apply 120 VAC

1. Q1→7805
   CD3→ +12V
   CD4 → +5V

2. Q2 → 7818
   C9→ +26V
   C11→ +18V

3. Q3→ 7918
   C10→ -26V
   C12 → -18V

4. Q4 →7815
   C20→ -18V
   C22→ -15V

5. Q5→ 7915
   C20→ -18V
   C22→ -15V

6. Q9→ 7905
   C42→ -12V
   C44 → -15V

7. Q8→ 7805
   C43→ +5V
   C41→ +12V

8. Q7→ 7912
   C28→ -18V
   C30→ -12V

9. Q6→ 7812
   C27→ +18V
   C29→ +12V

10. Tip 107→ Q102, Q202, Q302, Q402

a) C110, C210, C310, C40 → -18V

11. Tip 102→ Q101, Q102, Q201, Q301, Q401

a) C108, C208, C308, C408 +18V

12. 1C2→ OPA2134
    C35→ +12V
    C36→ -12V

13. 1C1→ OPA2134
    C33→ +12V
    C34→ -12V

14. 1C3→ OPA2134
    C37→ +12V
    C38 → -12V

15. 1C101→ OPA2134
    C104→ +15V
    C106→ -15V

16. 1C301→ OPA2134
    C304→ +15V
    C306→ -15V
17. Q103, Q203, Q303, Q403→ TL431

- Measure across capacitors:

a) C103, C203, C303, C403→ 2.5V

18. Bias voltages → 150MV to 200 MV

- Measure across resistors

a) R108, R107, R207, R208, R308, R307, R407, R408

19. Offset→ 10MV (+) or (-) maximum measure W/Respect to GND.

T.P. lower pins on R109, R209, R309, R409

20. Offset on tape out → maximum (+)(-) 10MV

21. Check signals

CP-35 Display
(B103XR02)

1. INSPECTION

a) Visually check all parts for: solder bridges or splashes, backwards or missing parts and component orientation.
b) Sockets on light bars must be 3 layers.
c) C3, R1, C18 are empty.
d) Check double side tape on the bottom of the socket.

2. FUNCTIONS

a) Install micro chip→ CAP100 XC on U1 (install all red LED)
b) Plug on the unit.
c) Countdown from 20.0 to 0.00→ relay clicks.
d) REG1 LED lights.
e) Press < selector> switch up and down one at a time.
- All LEDs must light one at a time.
- Relay clicks every time you press selector switch.

f) Press tape switch relay clicks, LED lights.
g) Press mute, no click.
h) Check volume manually.
i) Check remote control – model 10 – if all functions are working.

Adjusting CP-35 Gain to Unity

1- Disconnect unit from the AC line and from the system
2- Remove the top cover
3- Locate and remove resistors **R202** and **R402**
4- Locate and replace resistors **R103** and **R303** from the old value (**86.6 Kohms**) to the new value of **21.5 Kohms**
5- Replace the top cover and test unit.

Instruction to converse Classé 20,30,CP-35 and CP-40
to new operating voltage

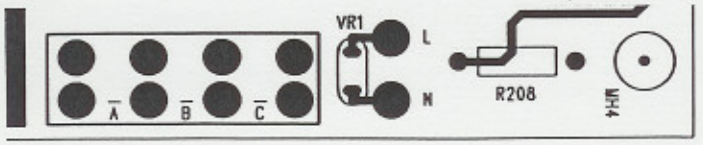
1) Unplug unit.
2) Remove top cover.
3) Change jumpers on right rear corner of PCB as below for new operating voltage.
4) Change varistor VR1:

221 for 100V - 120V
441 (or 391) for 220V - 240V

Note: If varistor is not available, remove old one and leave it empty.

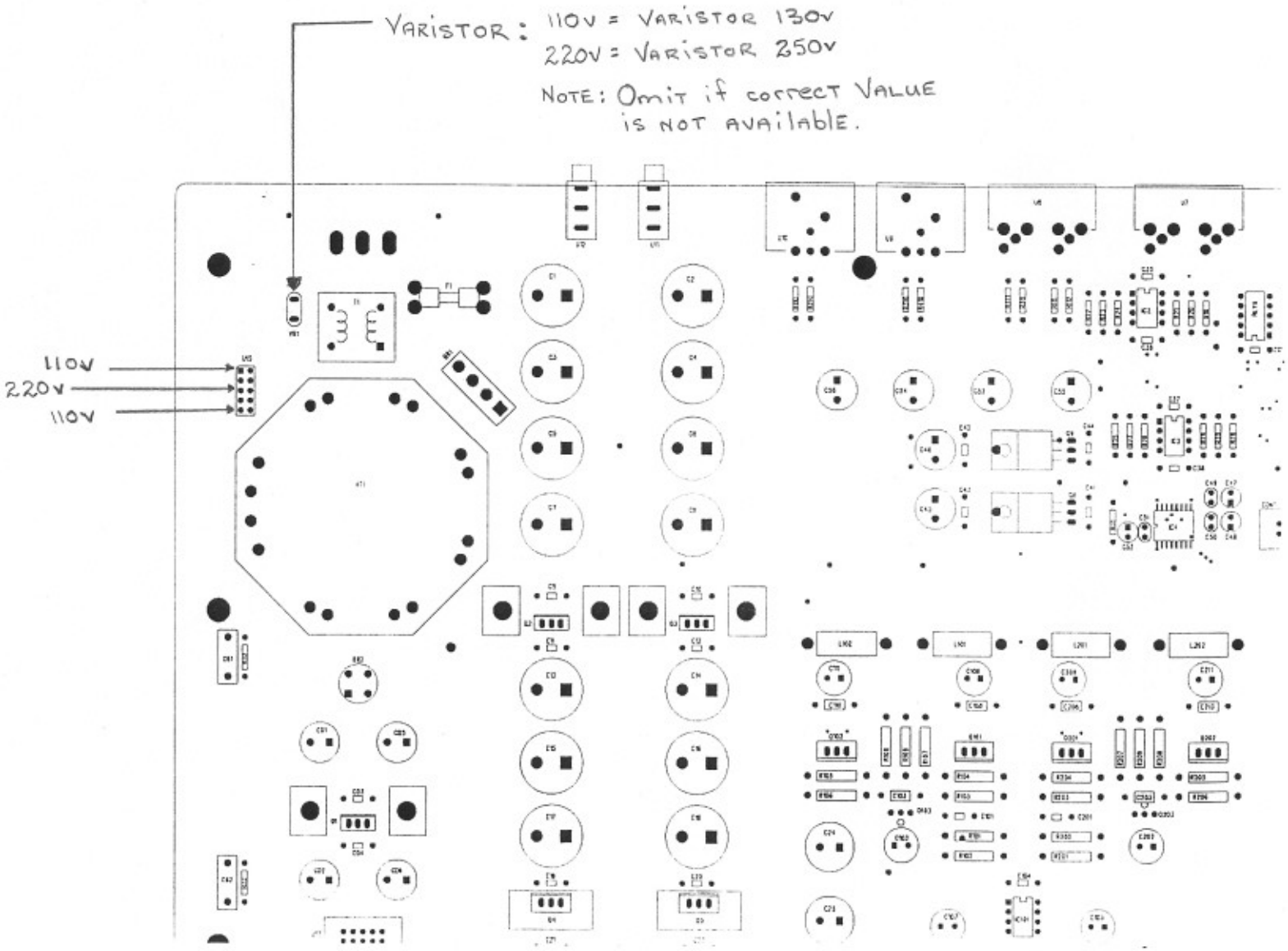
5) Close top cover.

VOLTAGE	JUMPER (S)
100V - 120V	A,C
220V - 240V	B



REAR →

← FRONT

B101XR03 MAINBOARD

CP-35